

Design and Textile Materials

1 cycle academic study programme

1 General description of the programme

The academic undergraduate study programme of the first cycle with the title Design and Textile Materials, is a three year study programme and is aligned with the Bologna directives. The programme is evaluated with 180 ECTS and represents the basis for the Masters study programme of the second cycle Design and Textile Materials study programme.

This study programme is aimed at providing undergraduates with the interdisciplinary knowledge to effectively overcome the gap between theoretical knowledge and its practical application and to be competitive on the international market regarding the development of new products, technologies or processes. Graduate students are able to understand and apply their knowledge for the designing and planning of textiles and to optimise the textile products in relation to their forms, manufacturing methods, quality assurance, and price. The study programme is comparable with similar study programmes throughout Europe.

The undergraduate study programme Design and Textile Materials lasts for 3 years. The first 4 semesters (2 years) are common for all students of the programme. Within the first four semesters the students receive knowledge about basic natural, design and computer science together with an insight into textiles. The third year of the study is divided into two modules:

- Textile Materials
- Engineering Design of Textile Materials.

These study modules are designed in such a manner that the students of both modules acquire basic knowledge of textile materials and textile technologies or textile design, and in the fifth and partly in the sixth semesters they specialise in one of the specific fields, i.e. textile materials and design. In this way they obtain a rather broad basis for further specialisation.

2 Short descriptions of the study modules

2.1 Textile Materials

The students of this module will gain the most important theoretical and practical knowledge that is required for the managing of textile processes and the development of new textile materials and processes. Particular attention is devoted to new technologies, e.g. nanotechnology, biotechnology, recycling, ecology, etc. New technical textiles are studied in detail as they are the bases for the preparations of new advanced smart and intelligent textiles.

2.2 Engineering Design of Textile Materials

The students of this module will gain the theoretical and practical knowledge needed for designing textile materials. Their training comprises the integration of theoretical knowledge on materials and design with the designing of various valuable and fashionable textile forms.

3 General learning outcomes and competencies of the students

Graduate students will gain the following general competences:

Ability to use knowledge from natural sciences, information technology, design, and textile materials and technologies to solve technical and design problems.

Ability to use analytical and experimental methods to solve practical problems in the professional field,

Ability to integrate theoretical knowledge and methods of research work to solve technical problems,

Ability to present technical solutions and design ideas in written or oral form,

Ability of creative thinking,

Ability for teamwork and communication skills,

Ability to understand the general structure of the fundamental discipline and cohesion between its sub-disciplines,

Ability to understanding and apply methods of critical analysis and development theories, and their applications when solving work problems,

Ability to develop skills and expertise in the application of knowledge within a particular field of expertise.

4 The main subject-specific competencies that can be obtained from the academic study programme of Design and Textile Materials:

- Knowledge within the fields of engineering design, textile materials and processes, computer and information science, design and manufacture of clothing, ecology, environmental policy, textile testing techniques, and waste management,
- Ability to design textile materials and 3D textile forms,
- Ability to manage existing textile processes and to update them,

- Ability to design and produce textile products by taking into account their forms, quality and price,
- Ability to produce independent and creative work,
- Ability to communicate within an organisation and with partners and customers,
- Ability to solve practical problems using scientific methods and procedures,
- Ability to integrate fundamental knowledge from different scientific fields and applications,
- Ability to incorporate new information and interpretations within the context of the basic discipline,
- Ability to use the information and communication technologies and systems within a particular field of expertise.

5 General curriculum

The academic-level diploma study programme of Design and Textile

Materials is divided into the following two parts:

Part	Part of study	Duration	ECTS credits
1	Joint courses	2 years (4 semesters)	120
2	Module courses	1 year (2 semesters)	60
Total:		3 years	180

6 Detailed curriculum

1. year							
Subject	1 st semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
BASICS OF TEXTILE DESIGN	30	0	30	60	120	180	6
MATHEMATICS WITH STATISTICS	30	0	30	60	120	180	6
DRAWING AND PAINTING	15	0	25	40	80	120	4
INTEGRATED MANAGEMENT SYSTEM	30	0	0	30	60	90	3
COLOUR AND COLOUR COMMUNICATION	30	0	30	60	120	180	6
FUNDAMENTALS OF CLASSICAL PHYSICS	30	0	30	60	90	150	5
Together semester:	165	0	145	310	590	900	30

Subject	2 nd semester				Cont. hours	Individ. work	Hours	ECTS
	L	S	T	Individ. work in Lab				
FIBREFORMING POLYMERS	30	0	30	0	60	120	180	6
CHEMISTRY	35	0	35	0	70	140	210	7
COMPUTER AND INFORMATION SCIENCE FOR TEXTILE APPLICATIONS	30	0	30	0	60	120	180	6
HISTORY AND CULTURE OF DRESSING	25	0	25	0	50	100	150	5
INTERDISCIPLINARY WORKSHOP 1	0	30	30	30	90	90	180	6
Together semester:	120	30	150	30	330	570	900	30
Together year:	285	30	295	30	640	1160	1800	60

2. year							
Subject	3 rd semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
MECHANICAL TEXTILE PROCESSES	40	0	40	80	160	240	8
TEXTILE DESIGN 1	25	0	35	60	120	180	6
COMPUTER AIDED DESIGN AND PRODUCTION OF TEXTILES	15	0	25	40	80	120	4
TEXTILE CHEMICAL PROCESSES	40	0	40	80	160	240	8
MANAGEMENT AND PRODUCTION	25	10	15	50	70	120	4
Together semester:	145	10	155	310	590	900	30

Subject	4 th semester				Cont. hours	Individ. work	Hours	ECTS
	L	S	T	Individ. work in Lab				
TECHNICAL TEXTILES	20	0	20	0	40	80	120	4
TEXTILE TESTING	30	0	30	0	60	120	180	6
GARMENT MANUFACTURING PROCESSES	30	0	20	0	50	100	150	5
CONSTRUCTION OF TEXTILES	30	0	30	0	60	120	180	6

ECOLOGY AND ENVIRONMENTAL PROTECTION	15	15	0	0	30	60	90	3
INTERDISCIPLINARY WORKSHOP 2	0	30	30	30	90	90	180	6
Together semester:	125	45	130	30	330	570	900	30
Together year:	270	55	285	30	640	1160	1800	60

Modul: Textile materials

3. year									
Subject	5 th semester				Cont. hours	Individ. work	Hours	ECTS	
	L	S	T	Individ. work in Lab					
ORGANIC CHEMISTRY	30	0	30	0	60	120	180	6	
POLIMERS 1	30	0	30	0	60	120	180	6	
FIBRE STRUCTURE AND PROPERTIES	30	0	30	0	60	120	180	6	
PROJECT WORKSHOP	0	30	30	30	90	90	180	6	
Elective subject 1*	30	0	30	0	60	120	180	6	
Together semester:	120	30	150	30	330	570	900	30	

Subject	6 th semester					Cont. hours	Individ. work	Hours	ECTS
	L	S	T	Individ. work in Lab	K				
NEW TEXTILE MATERIALS	45	0	15	0	0	60	120	180	6
CONTEMPORARY TEXTILE MATERIALS TREATMENTS	30	0	30	0	0	60	120	180	6
Elective subject 2**	60	0	60	0	0	120	240	360	12
DIPLOMA WORK	0	0	30	0	30	60	120	180	6
Together semester:	135	0	135	0	30	300	600	900	30
Together year:	255	30	285	30	30	630	1170	1800	60
Together 3 years:	810	115	865	90	30	1910	3490	5400	180

L – lectures, S – seminar; T – tutorial; K- konsultation

*Elective subjects 1 – Modul Textile materials :

Subject	5 th semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
TEXTILE DYEING, FINISHING AND PRINTING	30	0	30	60	120	180	6
TEXTILE CARE	30	0	30	60	120	180	6

**Elective subjects 2 – Modul Textile materials :

Subject	6 th semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
COMPOSITES	30	15	15	60	120	180	6
SPECIAL YARNS AND KNITTED FABRICS	30	15	15	60	120	180	6
POLYMER MATERIALS RECYCLING	30	0	30	60	120	180	6

SUSTAINABLE TEXTILE MATERIALS	30	15	15	60	120	180	6
TECHNOLOGICAL AND WASTE WATERS	30	15	15	60	120	180	6
BIOTECHNOLOGICAL PROCESSES IN TEXTILE 1	30	15	15	60	120	180	6
STANDARDIZATION AND QUALITY	30	15	15	60	120	180	6

Modul: Engineering Design of Textile Materials

3. year								
Subject	5 th semester				Cont. hours	Individ. work	Hours	ECTS
	L	S	T	Individ. work in Lab				
FASHION DESIGN	15	0	35	0	50	100	150	5
PLANNING OF TEXTILE FORMS DEVELOPMENT	30	0	20	0	50	100	150	5
SMART MATERIALS AND DESIGN	15	15	0	0	30	60	90	3
PATTERN MAKING DESIGN	30	0	30	0	60	120	180	6
PROTOTYPE WORKSHOP	0	20	30	30	80	70	150	5
Elective subject 1*	30	0	30	0	60	120	180	6
Together semester:	120	35	145	30	330	570	900	30

Subject	6 th semester					Cont. hours	Individ. work	Hours	ECTS
	L	S	T	Individ. work in Lab	K				
COLLECTION DESIGN	15	0	45	0	0	60	120	180	6
COMPUTER BASED SIMULATION OF TEXTILE FORMS	30	0	30	0	0	60	120	180	6
Elective subject 2**	60	0	60	0	0	120	240	360	12
DIPLOMA WORK	0	0	30	0	30	60	120	180	6
Together semester:	105	0	165	0	30	300	600	900	30
Together year:	225	35	310	30	30	630	1170	1800	60
Together 3 years:	780	120	890	90	30	1910	3490	5400	180

L – lectures, S – seminar; T – tutorial; K- konsultation

*Elective subjects 1 – Modul Engineering Design of Textile Materials:

Subject	5 th semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
INTERIOR TEXTILE DESIGN 1	30	0	30	60	120	180	6
FASHION ACCESSORIES DESIGN	15	0	45	60	120	180	6

****Elective subjects 2 – Modul Engineering Design of Textile Materials:**

Subject	6 th semester			Cont. hours	Individ. work	Hours	ECTS
	L	S	T				
PROTOTYPE MAKING	15	0	45	60	120	180	6
E-BUSINESS AND MULTIMEDIA IN TEXTILES	30	15	15	60	120	180	6
MATERIAL & PRODUCT QUALITY EVALUATION	30	0	30	60	120	180	6
ANTROPOMETRY AND PATTERN MAKING DESIGN	30	0	30	60	120	180	6
COMPUTER AIDED PATTERN DESIGN AND TEXTILE PRODUCTS PROTOTYPING	30	0	30	60	120	180	6
DESIGN AS COMMUNICATION MEDIA	30	0	30	60	120	180	6